

WHAT IS CLAIMED IS :

1. A multimedia interface device for the transfer of information in a communications network, wherein the multimedia interface device comprises:
 - 5 - at least one first connection means to which at least one first communications device, called a first sending device, can get connected by means of a first communications link compliant with a first protocol,
 - at least one second connection means to which at least one second communications device, called a second sending device, can get connected by means of a second communications link compliant with a
10 second protocol,
 - means of connection to a single remote device by means of a single cable constituted by at least one pair, said remote device called a switching device comprising at least switching means between at least two ports,
 - means to mix the information sent out by said at least two devices into
15 only one stream of information in the form of segments, each segment being able to contain part of the information sent out by the first device and/or by the second device,
 - means to transfer the stream of information in the form of segments on said at least one pair of said cable to the switching device to which it is
20 connected according to a third protocol different from the first and second protocols.
2. A device according to claim 1, wherein it comprises a means to obtain packets from the information sent out by the at least two devices, a segment being able to contain the obtained packets or part of the obtained packets.
- 25 3. A device according to claims 1 or 2, wherein the first protocol is a protocol adapted to the transfer of multimedia information by isochronous or asynchronous type data packets.
4. A device according to claim 3, wherein the first protocol is a protocol compliant with the IEEE1394 standard.
- 30 5. A device according to claim 4, wherein the mixing means comprise means for the reservation of bandwidth in the communications network.

6. A device according to claim 5, wherein the bandwidth reservation means ensure a minimum bandwidth for the isochronous type multimedia information and ensure a maximum bandwidth for the asynchronous type multimedia information.

5 7. A device according to any of the claims 1 to 6, wherein the second protocol is a protocol adapted to the transfer of information by Ethernet type packets.

8. A device according to any of the claims 1 to 7, wherein the interface device furthermore comprises means for the reception of information coming from the switching device to which it is connected, means to determine the connection means to which the device that is the destination of the information is connected and means for the transfer of said received information to the determined connection means.

10 9. A device according to claim 8, wherein the received information coming from the switching device is in the form of segments, one segment possibly comprising information intended for a plurality of destination or listener devices.

15 10. A device according to claim 9, wherein the segments furthermore comprise information representing the state of occupancy of the ports of the switching device to which the device is connected.

11. A device according to any of the claims 1 to 10, wherein the cable consists of ~~four~~ pairs, two pairs dedicated to the sending of information and two pairs dedicated to the reception of information.

20 12. A device according to claim 11, wherein segments are transmitted on each of the pairs and wherein, on the transmission pairs dedicated to sending or reception, one pair transmits segments comprising most significant bits of the information bytes sent by the sending devices and the other pair transmits segments comprising least significant bits of the information bytes sent by the sending devices.

25 13. A device according to claim 1, wherein the cable consists of at least two pairs, ~~and~~ wherein the means of connection to the switching device comprise, for each pair, a ~~midpoint~~-grounded transformer and wherein the interface device comprises means for obtaining electrical power connected to said midpoints of the transformers.

30 14. A device according to claim 1, wherein the cable consists of at least two pairs, and wherein the interface device comprises means for the connection of a telephone communications device to a telephone line by means of midpoints of two transformers.

15. A device according to claims 13 and 14, wherein the cable consists of four pairs, two pairs being dedicated to the sending of information and two pairs being dedicated to the reception of information, the connection means of the telephone communications device are connected to the telephone line by means of midpoints of the transformers associated with the pairs dedicated to the transmission or reception of information, the means for obtaining electrical power are connected to said midpoints of the other transformers.

16. A device according to any of the claims 1 to 15, wherein the means of connection to a single remote device comprises a wall socket, integrated in a wall and connected to the single remote device and to the multimedia device by means of a single medium.

17. A device according to claim 16, wherein the multimedia interface device is located, outside the wall, on one side of the wall and the remote device is located on the other side of the wall.

18. A device according to claims 16 or 17, wherein the single medium is a CAT 5 type cable and the wall socket is a RJ 45 type socket.

19. A device according to any of the claims 16 to 18, wherein the wall socket is connected to the single remote device through a multiple rack by means of a single medium, the multiple rack being connected to a plurality of wall sockets, and selectively allowing one of the plurality of the wall sockets to communicate with the single remote device.

20. A device according to claim 19, wherein the multimedia interface device is located, outside the wall, on one side of the wall and the remote device and the multiple rack are located on the other side of the wall.

21. A device according to claim 1, wherein the multimedia interface device comprises filtering means to filter signals coming from a telephone communications device connected to said at least one pair of the single cable.

22. A switching device for the transfer of information in a communications network, wherein the switching device comprises:

- means of connection to at least one remote multimedia interface device by means of a single cable consisting of at least one pair,

- at least two communications ports with which information storage means are associated, it being possible to connect the communications ports to a second switching device or to a second multimedia interface device,

5 - switching means to transfer the information between the ports and/or between the connection means and to at least one of the ports,

- means for obtaining information representing the quantity of information contained in the information storage means,

- means for the transfer of the information obtained towards said at least one device to which the switching device is connected.

10 23. A device according to claim 22, wherein the information transferred to said at least one multimedia interface device is in the form of segments, one segment possibly comprising information intended for a plurality of reception devices connected to said at least one multimedia interface device.

15 24. A device according to claim 22, wherein the cable consists of four pairs, two pairs dedicated to the sending of information and two pairs dedicated to the reception of information.

20 25. A device according to claim 24, wherein segments are transmitted on each of the pairs and wherein, on the two transmission pairs dedicated to sending or reception, one pair transmits segments comprising most significant bits of the information bytes sent by the sending devices and the other pair transmits segments comprising least significant bits of the information bytes sent by the sending devices.

25 26. A device according to claim 24, wherein the means of connection to the switching device comprise, for each pair, a midpoint transformer and wherein the interface device comprises means for obtaining electrical power connected to said midpoints of the transformers.

27. A device according to claim 24, wherein the switching device comprises means for the connection of a public telephone line to the midpoints of two transformers.

30 28. A device according to claim 27, wherein the means of connection of a public telephone line connect the public telephone line by means of midpoints of the transformers associated with the pairs dedicated to the transmission or reception of

information, the means for providing electrical power being connected to said midpoints of the other transformers.

29. A device according to claim 22, wherein the switching device comprises filtering means to filter signals coming from a telephone communications device connected to said at least one pair of the single cable.

30. A method for the processing of information in a multimedia interface device for the transfer of information in a communications network, the multimedia interface device comprising at least one first connection means to which at least one first communications device, called a first sending device, can be connected by means of a first communications link compliant with a first protocol, at least one second connection means to which at least one second communications device, called a second sending device, can get connected by means of a second communications link compliant with a second protocol, means of connection to a single remote device by means of a single cable constituted by at least one pair, said remote device called a switching device comprising at least means of switching between at least two ports and wherein the method comprises the steps of:

- the mixing of the information sent by said at least two sending devices into only one stream of information in the form of segments each segment being able to contain part of the information sent out by the first device and/or by the second device; and
- the transfer of the stream of information in the form of segments on said at least one pair of said cable to the switching device to which it is connected according to a third protocol different from the first and second protocols.

31. A method according to claim 30, wherein it comprises the step of obtaining packets from the information sent out by the at least two devices, a segment being able to contain the obtained packets or part of the obtained packets.

32. A method according to claims 30 or 31, wherein the first protocol is a protocol adapted to the transfer of multimedia information by isochronous or asynchronous type data packets.

33. A method according to claim 32, wherein the first protocol is a protocol compliant with the IEEE1394 standard.

34. A method according to claim 33 wherein, during the mixing step, a bandwidth reservation is made in the communications network.

35. A method according to claim 34, wherein the bandwidth reservation means ensure a minimum bandwidth for the isochronous type multimedia information and ensure a maximum bandwidth for the asynchronous type multimedia information.

36. A method according to any of the claims 30 to 35, wherein the second protocol is a protocol adapted to the transfer of information by Ethernet type packets.

37. A method according to any of the claims 30 to 36, wherein the method furthermore comprises a step for the reception of information coming from the switching device to which the interface device is connected, a step to determine the connection means to which the device that is the destination of the information is connected and a step for the transfer of said received information to the determined connection means.

38. A method according to claim 37, wherein the received information coming from the switching device is in the form of segments, one segment possibly comprising information intended for a plurality of destination or listener devices.

39. A method according to claim 38, wherein the segments furthermore comprise information representing the state of occupancy of the ports of the switching device to which the device is connected.

40. A totally or partially detachable information carrier, which can be read by a computer system, wherein the information carrier contains instructions from a computer program, enabling the implementation of a processing method according to any of the claims 30 to 39.

41. A computer program stored in any information carrier, said program comprising instructions to implement the processing method according to any of the claims 30 to 39, when it is loaded and executed by a computer system.